CITY OF LINCOLN

REPORT OF WASTE DISCHARGE ANTI-DEGRADATION ANALYSIS

1.0 CITY OF LINCOLN WASTEWATER TREATMENT AND RECLAMATION FACILITY (WWTRF)

The City of Lincoln (City) is currently discharging effluent under two NPDES permits: (1) Order No. 5-01-242 (NPDES No. CA0084476) regulates effluent discharges directly from the WWTRF to Auburn Ravine, and (2) Order No. R5-2005-0040 (NPDES No. CA0085103) regulates reclamation.

The WWTRF produces a high quality tertiary treated effluent. The wastewater treatment system consists of screening, grit removal, biological treatment including nitrification and denitrification, clarification, maturation ponds to equalize effluent quality, dissolved air flotation (DAF) to remove algae that grow in maturation ponds, chemical coagulation, rapid mix flocculation, granular medium filtration, disinfection with ultraviolet (UV) light, and effluent reaeration. An emergency storage basin with a compacted clay liner, capable of holding approximately 79 million gallons, is provided to hold all effluent that does not meet discharge requirements.

The City has proposed expansion of the facility over the course of the new permit in two phases:

- The first phase will consist of the construction of headworks improvements, oxidation ditches with separate denitrification basins, secondary clarifiers, DAF units and effluent filters. These improvements will result in a design average dry weather flow capacity of 8.4 mgd.

- The second phase will consist of the construction of headworks (with influent pumps, screening and grit removal), oxidation ditches with denitrification basins, clarifiers, maturation ponds, DAF units, effluent filters, UV Disinfection system, and storage ponds. Additional sludge centrifuges, and active solar dryers will be constructed. These improvements will result in a design average dry weather flow capacity of 12.6 mgd.

Treated wastewater is currently discharged to Auburn Ravine, a water of the State, which is tributary to the East Side Canal, Cross Canal and Sacramento River. In addition, treated wastewater is used for land irrigation (reclamation). Auburn Ravine is effluent dominated

during a large portion of the year, water quality is primarily determined by the presence of the existing discharge. Insofar as the planned improvements having similar treatment process train will not change the water quality from current conditions, by definition water quality will be unchanged on a concentration basis, consistent with the Anti-degradation Policy. From a mass basis perspective, an increase in flow that is compliance with water quality objectives will provide available assimilative capacity for other uses.

2.0 PURPOSE OF THIS REPORT

The City proposed to increase its wastewater discharge from 4.2 mgd up to 12.6 mgd while expanding its WWTRF facilities. The purpose of this report is to complete an anti-degradation analysis in accordance with state and federal policies to determine whether the proposed increase in flow would lower the water quality in the receiving water body (Auburn Ravine), whether the increased discharge is protective of the beneficial uses of the receiving water, and whether lowering of the water quality, if any, in the receiving water is consistent with maximum benefit to the people of the State.

The purpose of this analysis to disclose anticipated water quality impacts resulting from this discharge at three flow conditions:

1. 8.4 MGD (ADWF) conditions after completion of first phase of treatment process improvements
2. 37.8 MGD ultimate equalized peak day flow conditions after completion of all treatment process improvements.

3.0 CHEMICAL IMPACTS OF WATER QUALITY

CTR CONSTITUENTS

A summary of detected priority pollutants (i.e. CTR Constituents) in the effluent is summarized in Table 1. In some instances, water quality is reported even though water quality criteria are currently lacking.

Table 1

Detected Effluent CTR Constituents: Anticipated Water Quality and Assimilative Capacity Analysis

Constituents	CTR #	Units	Criterion Conc.	Assimilative Capacity		Quantification Parameters		Lincoln WWTRF Effluent Characteristics		8.4 Mgal/d ADWF		37.8 Mgal/d (Peak Day)	
				Current Peak Ambient Conc.	Remaining Conc. Based Assimilative Capacity	RL[a]	MDL[a]	No. of Samples	Sample with Detectable Conc.	Peak Day Emissions (lbs)	Peak Day Mass Assimilative Capacity (lbs)	Peak Day Emissions (lbs)	Peak Day Mass Assimilative Capacity (lbs)
CTR Constituents with Reasonable Potential													
Acrylonitrile	18	µg/L	0.059	J0.4[b]	-0.34	2	0.33	17	1	0.03	-0.02	0.13	-0.11
Pentachlorophenol	53	µg/L	0.28	1.9	-1.62	1	0.6	7	1	0.13	-0.11	0.60	-0.51
Benzo(a)pyrene	61	µg/L	0.0044	J0.02	-0.02	0.3	0.02	7	1	1.40E-03	-1.09E-03	6.31E-03	-4.92E-03
3,4-Benzofluoranthene	62	µg/L	0.0044	J0.02	-1.56E-02	0.3	0.02	7	1	1.40E-03	-1.09E-03	6.31E-03	-4.92E-03
Dibenzo(a,h)-anthracene	74	µg/L	0.0044	J0.02	-0.02	0.1	0.02	7	1	1.40E-03	-1.09E-03	6.31E-03	-4.92E-03
Indeno(1,2,3-c,d)pyrene	92	µg/L	0.0044	J0.03	-0.03	0.05	0.02	7	1	2.10E-03	-1.79E-03	9.46E-03	-8.07E-03
CTR Constituents with No Reasonable Potential													
Antimony	1	µg/L	6	J0.4	5.60	0.5	0.1 - 0.3	18	12	0.03	0.39	0.13	1.77
Arsenic	2	µg/L	10	J2.3	7.70	0.5	0.1 - 0.3	18	17	0.16	0.54	0.73	2.43
Chromium (total)	5a	µg/L	160	J1.4	158.60	0.5	0.2	18	12	0.10	11.11	0.44	50.00
Chromium (VI)	5b	µg/L	0.2	0.2	0.0E+00	0.2	0.05	14	1	1.40E-02	0.0E+00	6.31E-02	0.0E+00
Copper	6	µg/L	7.1	6.2	0.90	0.04 - 1.5	0.02 - 0.28	37	37	0.43	0.06	1.95	0.28
Lead	7	µg/L	2.3	0.17	2.13	0.015 - 0.25	0.002 - 0.1	37	29	0.01	0.15	0.05	0.67
Mercury	8	µg/L	0.05	J0.0021	0.05	0.5	0.2 - 0.24	18	18	1.47E-04	3.36E-03	6.62E-04	1.51E-02
Nickel	9	µg/L	40	3.9	36.10	0.5	0.09 - 0.4	18	18	0.27	2.53	1.23	11.38
Selenium	10	µg/L	5	J 2	3.00	1	0.22 - 0.9	17	6	0.14	0.21	0.63	0.95
Silver	11	µg/L	2.7	J0.04	2.66	0.015 - 0.1	0.005 - 0.03	36	2	2.80E-03	1.86E-01	1.26E-02	8.39E-01
Thallium	12	µg/L	1.7	J0.04	1.66	0.1	0.01 - 0.03	17	2	2.80E-03	1.16E-01	1.26E-02	5.23E-01
Zinc	13	µg/L	92	44	48.00	0.1 - 2	0.06 - 0.8	37	37	3.08	3.36	13.87	15.13
Cyanide	14	µg/L	5.2	J2.8	2.40	3	0.8	18	6	0.20	0.17	0.88	0.76
Chloroform	26	µg/L	1.1	J0.6	0.50	0.5 - 1	0.04 - 0.09	17	14	0.04	0.04	0.19	0.16
Methyl Bromide	34	µg/L	48	J0.1	47.90	0.5 - 1	0.05 - 0.08	18	1	0.01	3.36	0.03	15.10
Methyl Chloride	35	µg/L	3	J0.08	2.92	0.5	0.04	17	2	0.01	0.20	0.03	0.92
Methylene Chloride	36	µg/L	4.7	J0.2	4.50	0.5	0.07	17	3	0.01	0.32	0.06	1.42
Toluene	39	µg/L	42	J0.4	41.60	0.5 - 1	0.06	17	14	0.03	2.91	0.13	13.11
Anthracene	58	µg/L	9600	J0.03	9600	0.3	0.02	7	1	2.10E-03	673	0.01	3026
Bis(2-ethylhexyl) phthalate	68	µg/L	1.8	J0.66	1.14	3	0.3	6	1	0.05	0.08	0.21	0.36
Butyl benzyl phthalate	70	µg/L	3	J1.7	1.30	5	0.7	6	1	0.12	0.09	0.54	0.41
Fluoranthene	86	µg/L	300	J0.03	299.97	0.05	0.02	7	1	2.10E-03	21.01	0.01	94.57
Fluorene	87	µg/L	1300	J0.04	1299.96	0.1	0.05	7	1	2.80E-03	91.07	0.01	409.81
Pyrene	100	µg/L	960	J0.02	959.98	0.05	0.02	7	1	1.40E-03	67.25	0.01	302.64
CTR Constituents without any Inland Water Criterion (Reasonable Potential Analysis Not Applicable)													
Benzo(g,h,i)perylene	63	µg/L		J0.02		0.3	0.02	7	1	1.40E-03		6.31E-03	
Phenanthrene	99	µg/L		J0.4		0.05	0.02	7	2	2.80E-03		1.26E-02	
CTR Constituents with Failed QC[c]													
Acenaphthylene	57	µg/L		J0.03		0.2	0.02	7	1	2.10E-03		9.46E-03	

a A range indicating lowest to highest quantification parameters (RL and MDL) are reported.
b. Prefix “J” represents Detected, but Not Quantified (DNQ).
c Failed QC indicates that the concentration of targeted constituents in the laboratory blanks is equal to or higher than the concentration detected in the effluent samples.

Detected CTR constituents with a reasonable potential to cause an exceedence of water quality criteria are listed below:

- Acrylonitrile
- Pentachlorophenol (PCP)
- Benzo(a)pyrene
- 3,4-Benzofluoranthene
- Dibenzo(a,h)-anthracene
- Indeno(1,2,3-c,d)pyrene

Detected CTR Constituents for which there is no Inland Water Quality Criteria are:

- Acenaphthylene
- Benzo(g,h,i)perylene
- Phenanthrene

Among all CTR chemical constituents with reasonable potential (listed above), only PCP was found in a concentration higher than the Reporting Limit (RL). The Lincoln WWTRF effluent was tested for PCP 14 times from seven samples over the course of four years (i.e. two different ELAP-certified labs analyzed for PCP from each of the seven samples). The presence of PCP was detected in one of 14 analytical results at concentration 1.9 μg/L using EPA Method 625 (PCP Method Detection Limit [MDL]: 0.6 μg/L). The other lab reported no detectable PCP in their portion of the same sample using EPA Method 515.4 (PCP MDL: 0.02 μg/L).

Out of nine compounds listed above, only phenanthrene was detected in more than one sampling event at a concentration below the RL and above the MDL (i.e. Detected, but Not Quantified or DNQ). Phenanthrene was detected twice, in both instances; the laboratory reported the occurrence of significant amounts (about 50-100%) of phenanthrene in the method blanks. This implies a possible false positive in the case of phenanthrene detection. Effluent discharged from Lincoln WWTRF will be monitored for phenanthrene to examine this issue.

With the exception of PCP, phenanthrene, and acrylonitrile, all other detected CTR constituents that exceeded the water quality objective were found in one of the seven samples analyzed. Those constituents were detected in concentrations below RLs (i.e. DNQs). Benzo(a)pyrene was measured at two independent laboratories under different EPA methods, one laboratory reported an estimated concentration of 0.02μg/L (at the MDL of 0.02 μg/L), whereas the other lab reported a Non Detect (at the MDL of 0.01 μg/L). Since most of the compounds were detected in the same sampling event: December 26, 2007, and the analytical results for that sample are

different between the two labs for some of the constituents, and those constituents were not detected historically (before or after 12/16/07) in Lincoln WWTRF effluent, it could be a result of sample contamination. However, Lincoln WWTRF will continue to monitor these constituents to identify any potential reoccurrences.

An assessment of current priority pollutant quality for all detected priority pollutant contaminants is presented in Table 1. The peak reported concentrations are the highest concentrations observed to date, consistent with guidance provided by the State Implementation Plan (SIP). The remaining assimilative capacity is the difference between the anticipated water quality objective and the current peak priority pollutant contaminant concentration. With the exception of constituents that have an estimated concentration (DNQ) above the water quality objective, the discharge creates some degree of assimilative capacity for all chemical contaminants. For those contaminants that apparently violate water quality objectives, a negative assimilative capacity is reported.

The peak daily mass (in pounds) for all detected contaminants is also reported, with an assessment of available assimilative capacity after discharge. Negative numbers represent instances in which water quality objectives are currently exceeded on a peak concentration basis.

NON-CTR CONSTITUENTS

A summary of detected non-priority pollutants (i.e. Non-CTR Constituents) in the effluent is summarized in Table 2. In some instances, water quality is reported even though water quality criteria are currently lacking.

Table 2

Detected Effluent Non-CTR Constituents: Anticipated Water Quality and Assimilative Capacity Analysis

Constituents	Units	Criterion Conc.	Assimilative Capacity		Quantification Parameters		Lincoln WWTRF Effluent Characteristics		8.4 Mgal/d ADWF		37.8 Mgal/d (Peak Day)	
			Current Peak Ambient Conc.	Remaining Conc. Based Assimilative Capacity	RL[a]	MDL[a]	No. of Samples	Sample with Detectable Conc.	Peak Day Emissions (lbs)	Peak Day Mass Assimilative Capacity (lbs)	Peak Day Emissions (lbs)	Peak Day Mass Assimilative Capacity (lbs)
Non-CTR Constituents with No Reasonable Potential												
Aluminum (acid soluble)	µg/L	200	70.348[b]	129.65	0.1 - 50	0.03 - 3.5	29	29	4.93	9.08	22.18	40.87
Barium	µg/L	100	26	74.00	0.1	0.02 - 0.06	19	19	1.82	5.18	8.20	23.33
Nitrate (as N)	mg/L	10	3.406 [b]	6.59	0.1 - 2	0.006 - 0.03	17	17	238.61	461.95	1073.75	2078.77
Fluoride	µg/L	1000	J0.1 [c]	999.90	0.1 - 1	0.007 - 0.02	18	9	0.01	70.05	0.03	315.22
Iron	mg/L	300	J0.04	299.96	0.05	0.005 - 0.01	18	10	2.80	21014	12.61	94563
Managanese	µg/L	50	J25	25.00	0.5 - 5	0.06 - 0.1	18	18	1.75	1.75	7.88	7.88
Ammonia	mg/L	0.5	0.47	0.03	0.1	0.04 - 0.1	18	14	32.93	2.10	148.17	9.46
Chloride	mg/L	106	93	13.00	5- 10	0.06 - 0.2	18	18	6515	911	29318	4098
Foaming Agents (MBAS)	mg/L	500	J0.053	500	0.05	0.01 -0.02	18	16	4	35024	17	157609
Nitrite (as N)	mg/L	1	J0.087	0.91	0.1 - 2	0.006 - 0.03	18	16	6.09	63.96	27.43	287.83
Electrical Conductance (EC)	µmhos/cm	700	500	200.00	10	10	18	18	NA	NA	NA	NA
Total Dissolved Solids (TDS)	mg/L	450	300	150	10	4 -5.6	18	18	21017	10508	94576	47288
Sulfate (as SO4)	mg/L	250	45	205	5	0.005 - 0.2	19	19	3153	14361	14186	64627
Sulfide (as S)	mg/L	0.029	J0.023	0.01	0.1	0.01	17	2	1.61	0.42	7.25	1.89
Xylenes	µg/L	17	J0.6	16.40	0.5 - 1	0.06 - 0.13	17	2	0.04	1.15	0.19	5.17
2,4-D	µg/L	70	0.44	69.56	0.1 -10	0.05 - 5.3	7	1	0.03	4.87	0.14	21.93
Ethylene Dibromide (EDB)	µg/L	0.0097	J0.005	4.70E-03	0.01 - 0.02	0.004 -0.005	7	1	3.50E-04	3.29E-04	1.58E-03	1.48E-03
Oxamyl	µg/L	50	1.4	48.60	20	1	7	1	0.10	3.40	0.44	15.32
Non-CTR Constituents without any Inland water Criterion (Reasonable Potential Analysis Not Applicable)												
Methylmercury	ng/L		0.068		NA	0.02	16	3	4.76E-06		2.14E-05	
Hardness	mg/L		330		5 - 10	3 - 6	19	19	23118.48		1.04E+05	
pH		6.5-8.5	9.5		NA	NA	16	16	NA		NA	
Phosphorus, Total (as P)	mg/L		1.3		0.1 - 0.5	0.008 - 0.04	10	10	91.07		409.83	
Phosphate, Total (as P)	mg/L		2.7		0.1 - 0.2	0.01 - 0.016	6	6	189.15		851.18	
Sulfite (as SO3)	mg/L		2.6		0.5 - 5	0.073 - 1	15	1	182.15		819.66	
OCDD	pg/L		J7.37		NA	1.87	5	1	5.16E-07		2.32E-06	
Non-CTR Constituent with Failed QC[d]												
Trichlorotrifluoroethane	µg/L		J0.45		1	0.28	14	1	0.03		0.14	

a A range indicating lowest to highest quantification parameters (RL and MDL) are reported.
b Average concentrations are used in the calculations based on the criterion being established to protect beneficial uses other than aquatic life.
c Prefix “J” represents Detected, but Not Quantified (DNQ).
d Failed QC indicates that the concentration of targeted constituents in the laboratory blanks is equal to or higher than the concentration detected in the effluent samples.

Methylmercury is included under the Total Mercury (CTR# 8) listed in Table 1. The concentrations of Methylmercury were reported in Table 2 for informational purpose only. Octachlorinated dibenzo-p-dioxin (OCDD) was detected in one out of five samples analyzed over the course of four years at a concentration below the reporting limit (DNQ) with a toxicity equivalence concentration of 7.65×10^{-12} mg/L (i.e., after application of OCDD toxicity equivalence factor to the OCDD concentration). The method blank had an OCDD concentration that was 73% of OCDD in effluent sample. This suggests lab contamination of the sample. The estimated concentration of OCDD is reported in the anti-degradation analysis, consistent with guidance provided by the State Implementation Plan (SIP).

An assessment of current effluent quality for all detected non-CTR contaminants is presented in Table 2. The peak reported concentrations are the highest concentrations observed to date, consistent with guidance provided by the State Implementation Plan (SIP) for water quality criteria based on protecting aquatic life. For criteria based on protecting other beneficial uses of the receiving water the average effluent contaminant concentration is presented per recent Regional Board precedent in analysis of NPDES permit effluent limitations. The remaining assimilative capacity is the difference between the anticipated water quality objective and the current peak non-priority pollutant contaminant concentration. With the exception of aluminum, total phosphorus, methyl mercury, OCDD, and sulfite, the discharge creates some degree of assimilative capacity for all chemical contaminants. For those contaminants that currently violate water quality objectives, a negative assimilative capacity is reported.

The peak daily mass (in pounds) for all detected contaminants is also reported, with an assessment of available assimilative capacity after discharge. Again, negative numbers represent instances whereby water quality objectives are currently exceeded on a peak concentration basis.

4.0 RECEIVING WATER MONITORING

Compliance with the receiving water limitations is based on measuring the impact of the effluent discharge on the receiving water. In the case of Auburn Ravine, the impact is measured by comparing the quality of the receiving water upstream of the effluent discharge point (R-3) to the quality of the receiving water downstream of the effluent discharge point (R-4). To monitor the overall situation, there are two receiving-water monitoring stations, as following:

- R-3: 75 feet upstream of the point of discharge in Auburn Ravine Creek
- R-4: 2000 feet downstream of the point of discharge in Auburn Ravine Creek

Since the specific design of Lincoln WWTRF allows effluent storage at environmentally sensitive times and discharge of large volumes of effluent from storage when Auburn Ravine has a large assimilative capacity, the effluent discharges can be the major components of flow in receiving water during parts of the year.

DISSOLVED OXYGEN

The current permit (Order No. 5-01-049) contains the following receiving water limitation regarding dissolved oxygen:

> *"The discharge shall not cause…concentrations of dissolved oxygen to fall below 7.0 mg/L. The monthly median of the mean daily dissolved oxygen concentration shall not fall below 85 percent of saturation in the main water mass, and the 95th percentile concentration shall not fall below 75 percent of saturation."*

Comparison of upstream DO concentrations (R-3) with downstream DO concentrations (R-4) is presented in Figure 1. The diagonal lines in Figure 1 represent the state at which the two DO concentrations being compared are equal. Data points above the diagonal line represent instances where the dissolved oxygen increased across the discharge location. The shaded zones in Figure 1 represent non-compliance. Data points presented within the shaded zone indicate problematic observations. The data in Figure 1 illustrates only a single violation.

Compliance with the requirements that monthly median of the mean daily dissolved oxygen concentration shall not fall below 85 percent of saturation in the main water mass, and the 95th percentile concentration shall not fall below 75 percent of saturation are illustrated in Figures 2 and 3. Data shows that during the two years of observation, Lincoln WWTRF always complied with these DO requirement.

In summary, re-aeration facilities constructed as part of the Lincoln facility ensure compliance with the DO receiving water limitations. The re-aeration facilities will be expanded, as needed, to ensure compliance for the increased wastewater flows anticipated in the future.

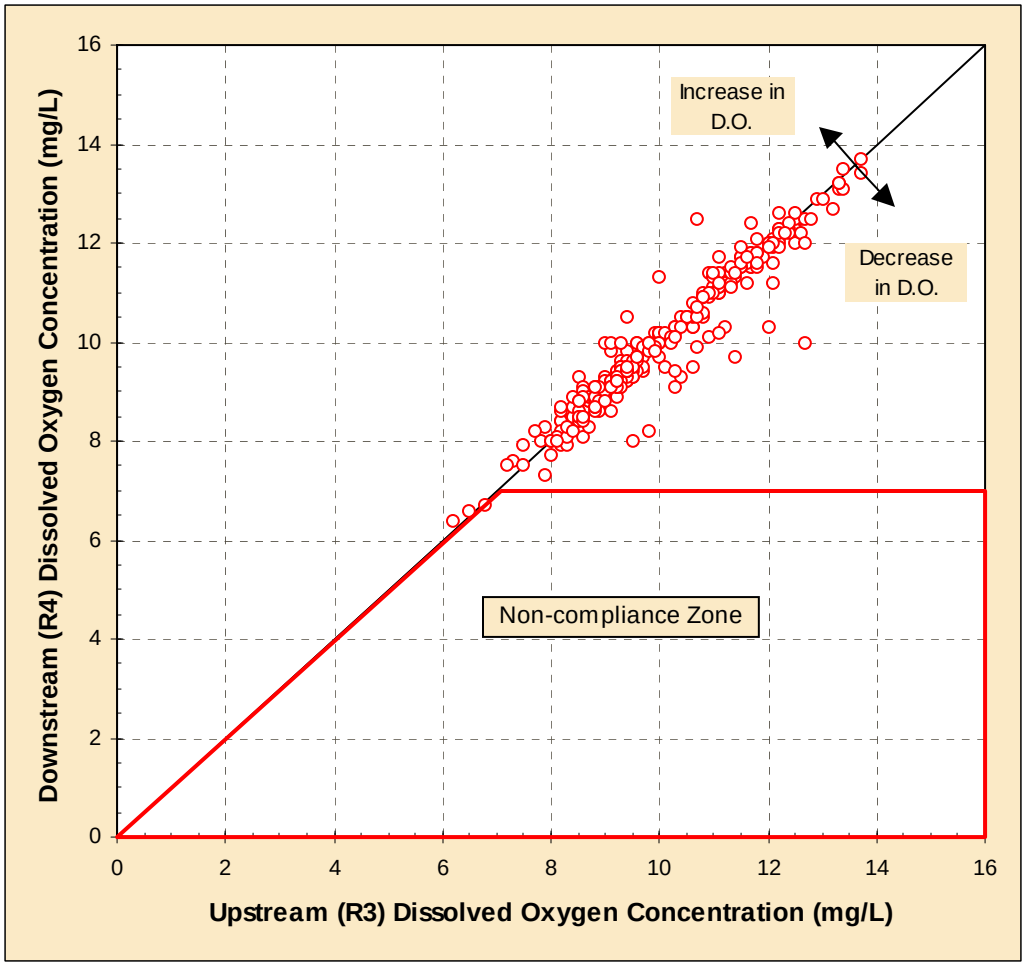

Figure 1
Dissolved Oxygen Minimum Concentration Compliance Assessment (2005- 2006)

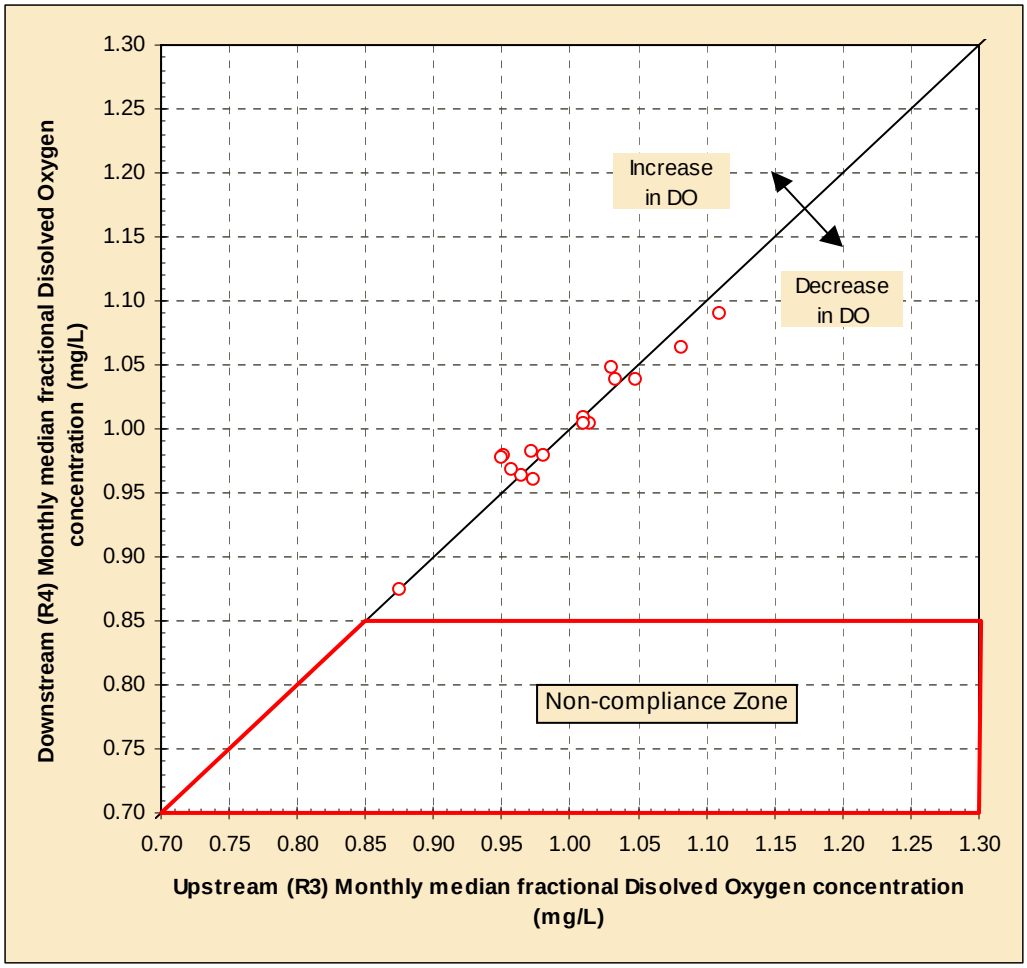

Figure 2
Dissolved Oxygen Monthly Median Concentration Compliance Assessment (2005-2006)

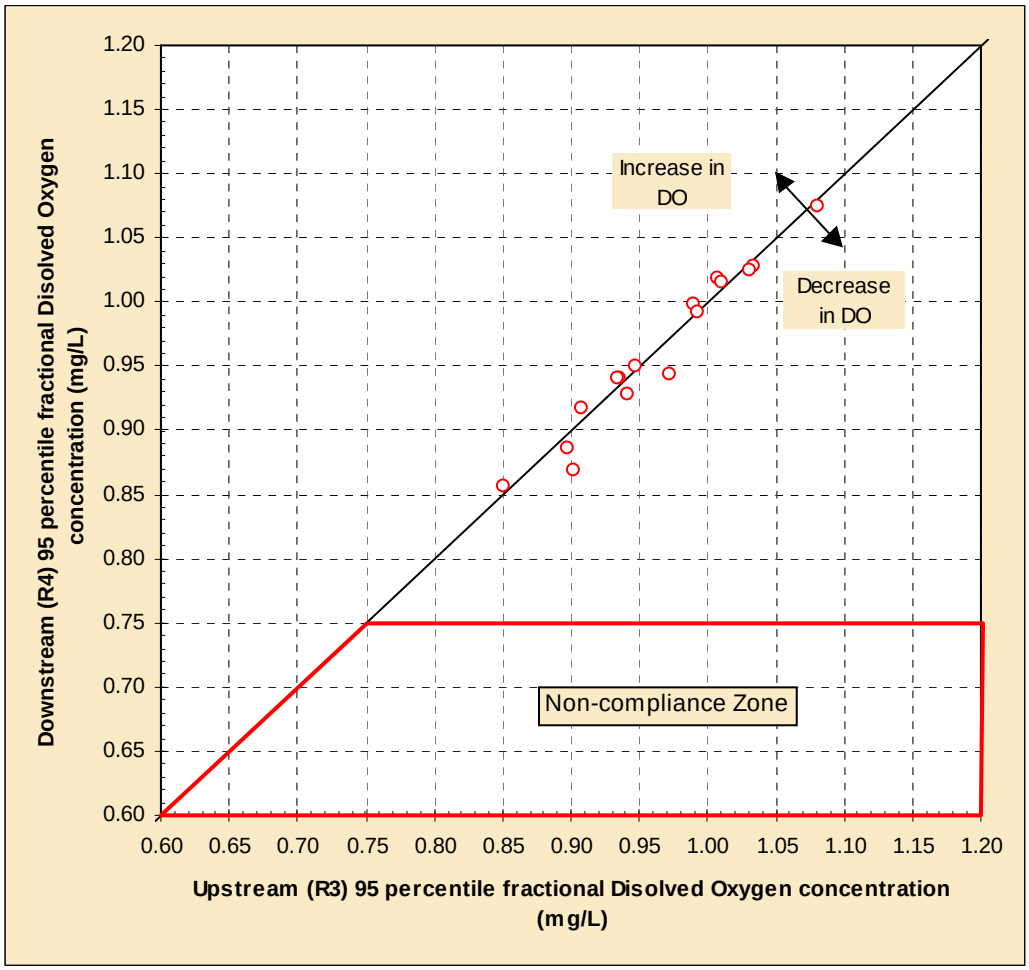

Figure 3
Dissolved Oxygen 95 Percentile Concentration Compliance Assessment (2005-2006)

pH

The current permit (Order No. 5-00-242) contains the following receiving water limitation regarding pH:

> *"The discharge shall not cause the ambient pH to fall below 6.5 exceed 8.5, or change by more than 0.5 units on an annual average basis."*

A comparison of downstream (R-4) pH values to upstream (R-3) pH values from the monitoring data reviewed are presented in Figure 4. Small open circles indicate single daily measurements while two large closed circles represent annually averaged pH values. The Lincoln WWTRF complies with the permit pH requirements. Based on the historical performance, compliance with the pH requirements is anticipated at higher flows.

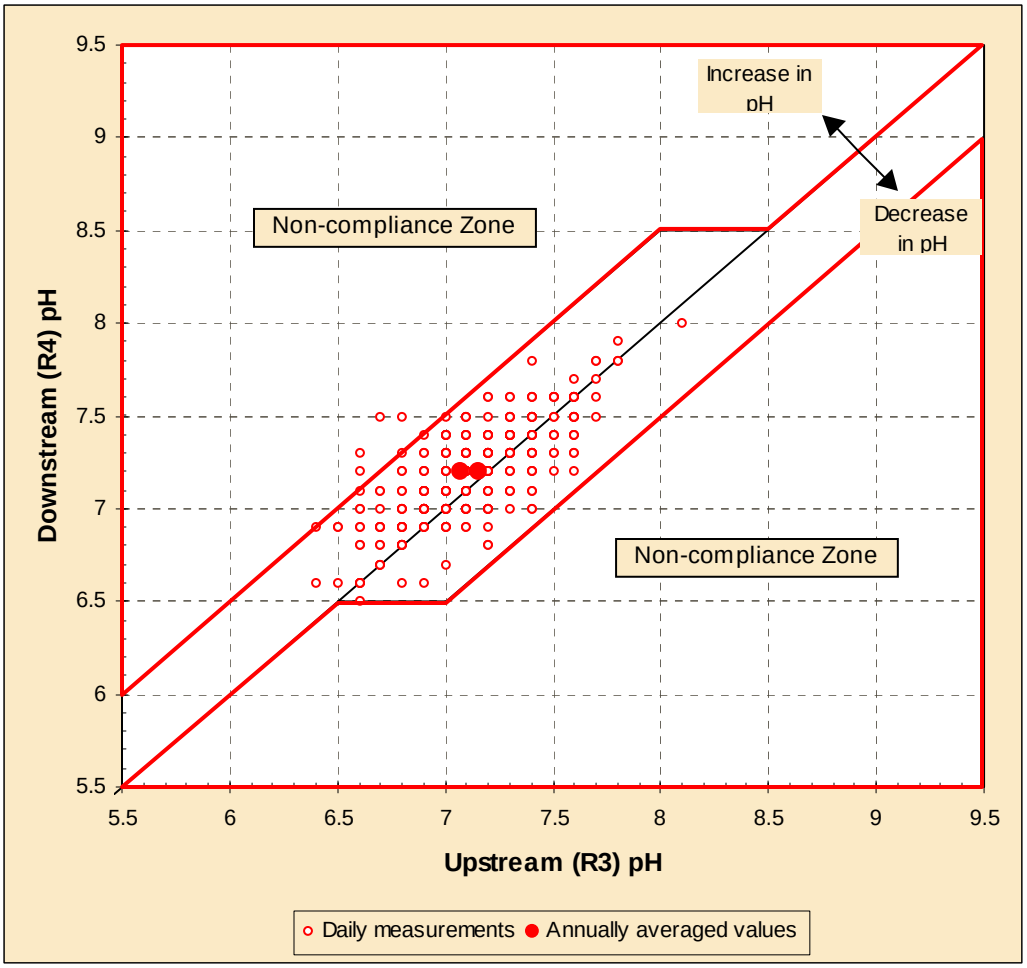

Figure 4
pH Compliance Assessment

TEMPERATURE

The current permit contains the following receiving water limitation regarding temperature:

> *"The discharge shall not cause the annual average temperature to increase more than 5 ℉ compared to stream temperature and shall not cause receiving stream temperature to rise above:*
>
> - *58 ℉ on monthly average and weekly median basis from October 1st through May 31st*
> - *64 ℉ any time from October 1st through May 31st*
> - *5 ℉ over ambient background temperature as a daily average for the period from June 1st through September 31st*

A comparison of upstream (R3) and downstream (R4) temperatures for the period from October 1st through May 31st, and June 1st to Sept. 31st are presented in Figures 5, 6 and 7. Several

violations were observed in the period from October through May. Daily average temperatures between June 1st and September 31st were in compliance range as well as annual based average temperature.

In October and November 2005 monthly average temperatures and several median week temperatures violated the 58°F maximum requirement. During the same time period several daily downstream temperature values exceeded 64°F, causing non-compliance. Temperature violations were the results of the maintenance activity at the WWTRF that included taking out of service the storage ponds used for effluent storage to assure receiving water temperature requirements compliance.

In addition, temperature limits were exceeded on two occasions in April and May 2005. In April and May high fluctuations in flow and temperature of Auburn Ravine Creek have occurred. After only three days of discharge in April and four days in May Discharger completely stopped further discharge into Auburn Ravine Creek and conveyed all the effluent into storage ponds. However few days of discharge influenced monthly average and weekly median values to increase above permitted limits. Based on the successful utilization of storage ponds over the past years, improved monitoring of receiving water temperature and the past two years of successful operation recognizing the occurrence of these temperature sensitive seasons, compliance with the temperature requirements is anticipated

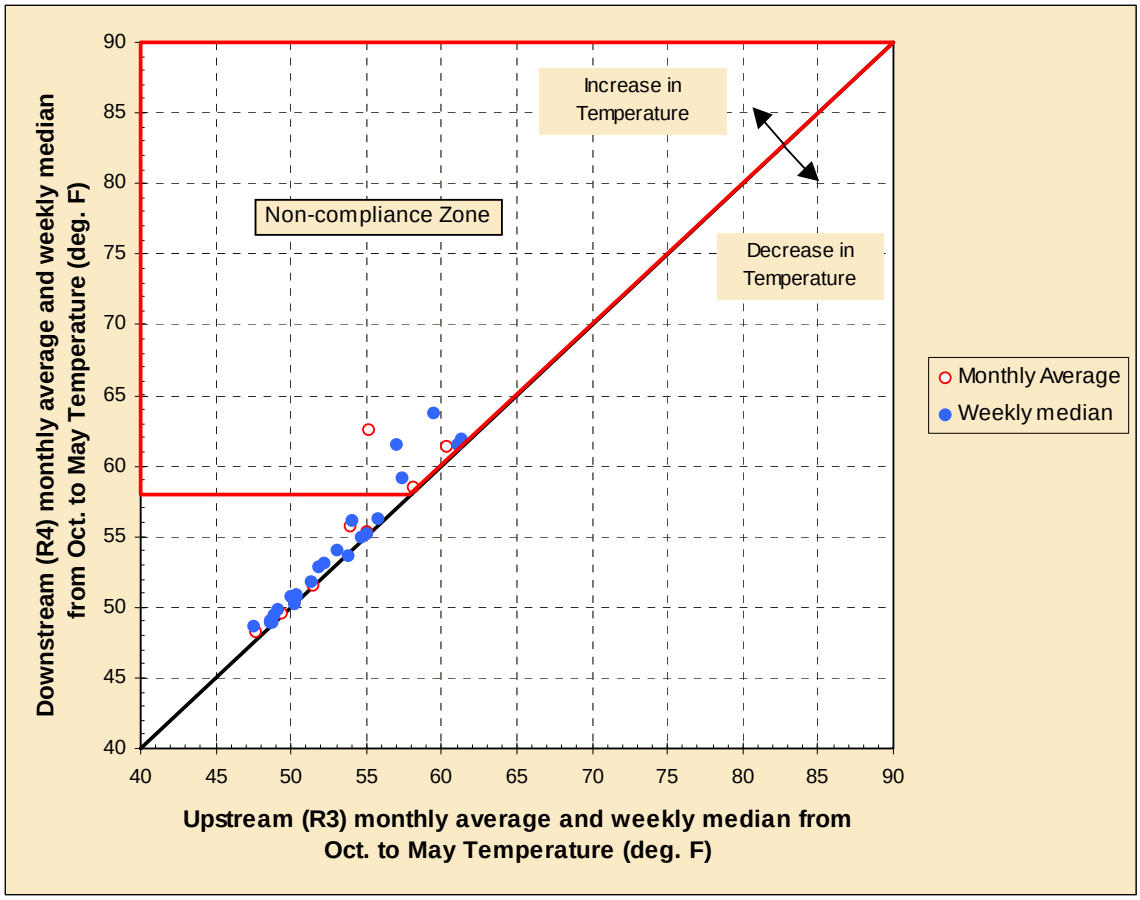

Figure 5
Temperature Compliance Assessment for period from October 1st to May 31st (2005-2006)

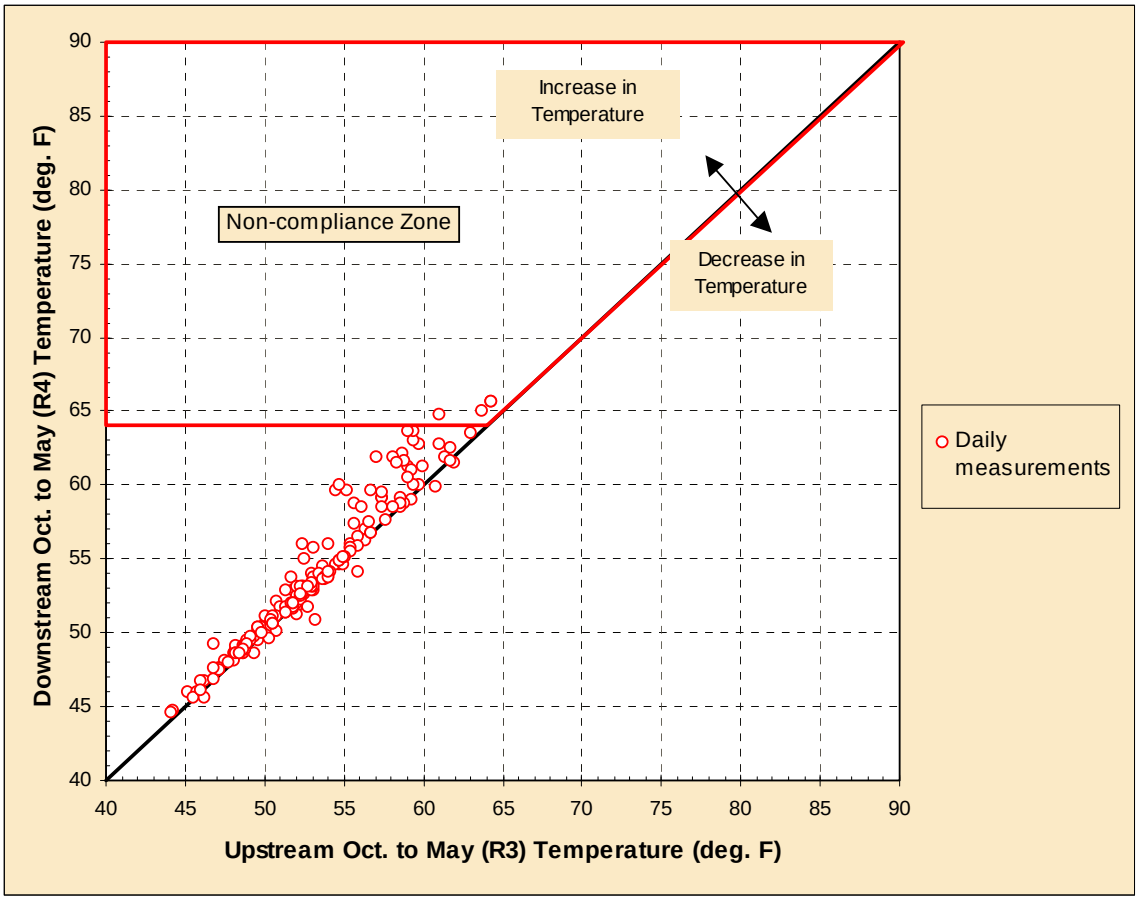

Figure 6
Temperature Compliance Assessment for period from October 1st to May 31st (2005-2006)

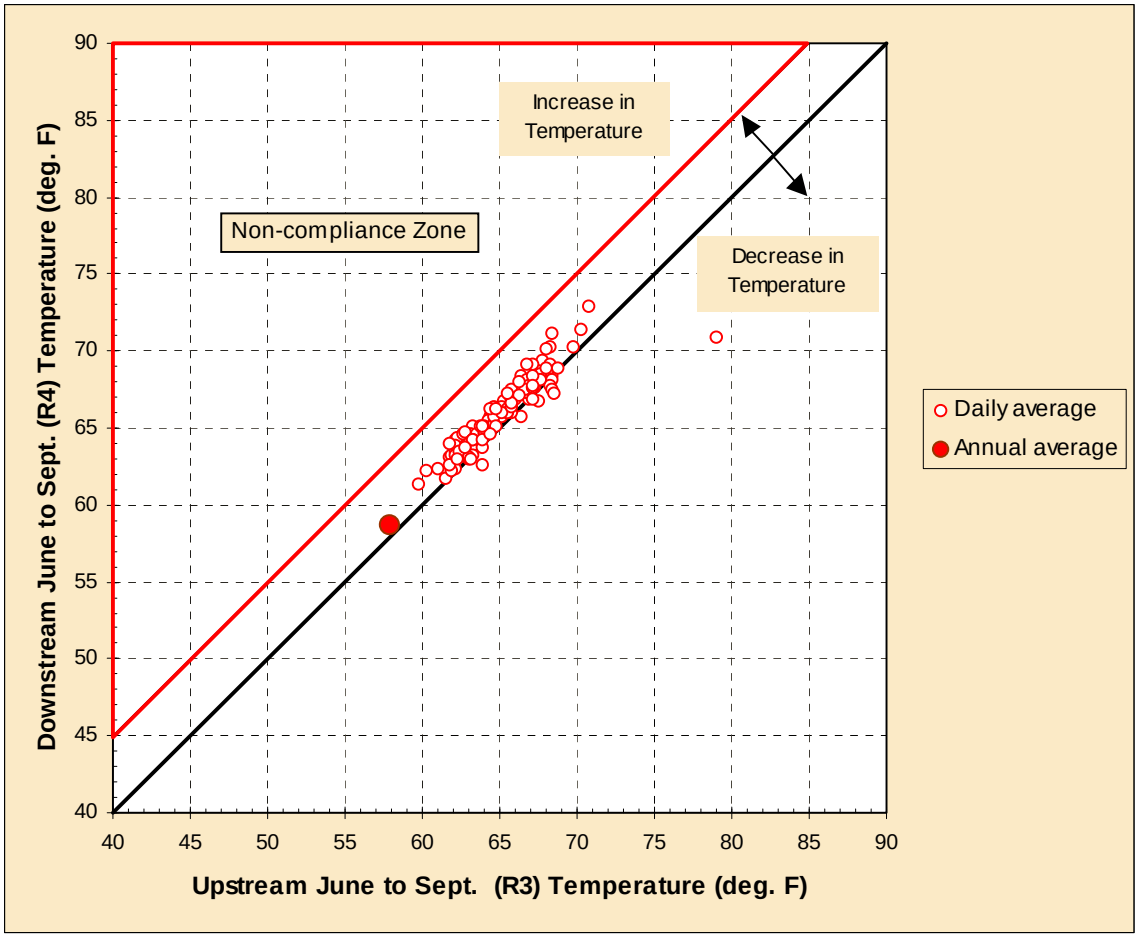

Figure 7
Temperature Compliance Assessment for period from June 1st to Sept. 31st (2005-2006)

TURBIDITY

The current permit contains the following receiving water limitations on turbidity:

1. *"The discharge shall not cause…*

   The annual average turbidity to increase more than 1 Nephelometric Turbidity Unit (NTU) where natural annual average turbidity is between 0 and 5 NTU."

2. *"The discharge shall not cause…the turbidity to increase as follows:*

   a. *More than 20 percent where natural turbidity is between 5 and 50 NTU.*
   b. *More than 10 NTU where natural turbidity is between 50 and 100 NTU.*
   c. *More than 10 percent where natural turbidity is greater than 100 NTU."*

Downstream turbidities (R-4), compared to upstream (R-3) turbidities from the daily monitoring data reviewed, are presented in Figures 8 and 9. Because of the significant range in turbidity, a low range assessment (i.e., turbidity less than 60 NTU) is provided in Figure 8, and a full range assessment (i.e., turbidity up to 120 NTU) is provided in Figure 9. Annual average turbidity of the receiving water in 2005 and 2006 was 10 and 20 NTUs, respectively. Therefore the first turbidity requirement listed above is not applicable to the Lincoln WWTRF. The WWTRF consistently complied with the second turbidity requirement. Based on the historical performance, compliance with the turbidity requirements is anticipated at higher flows.

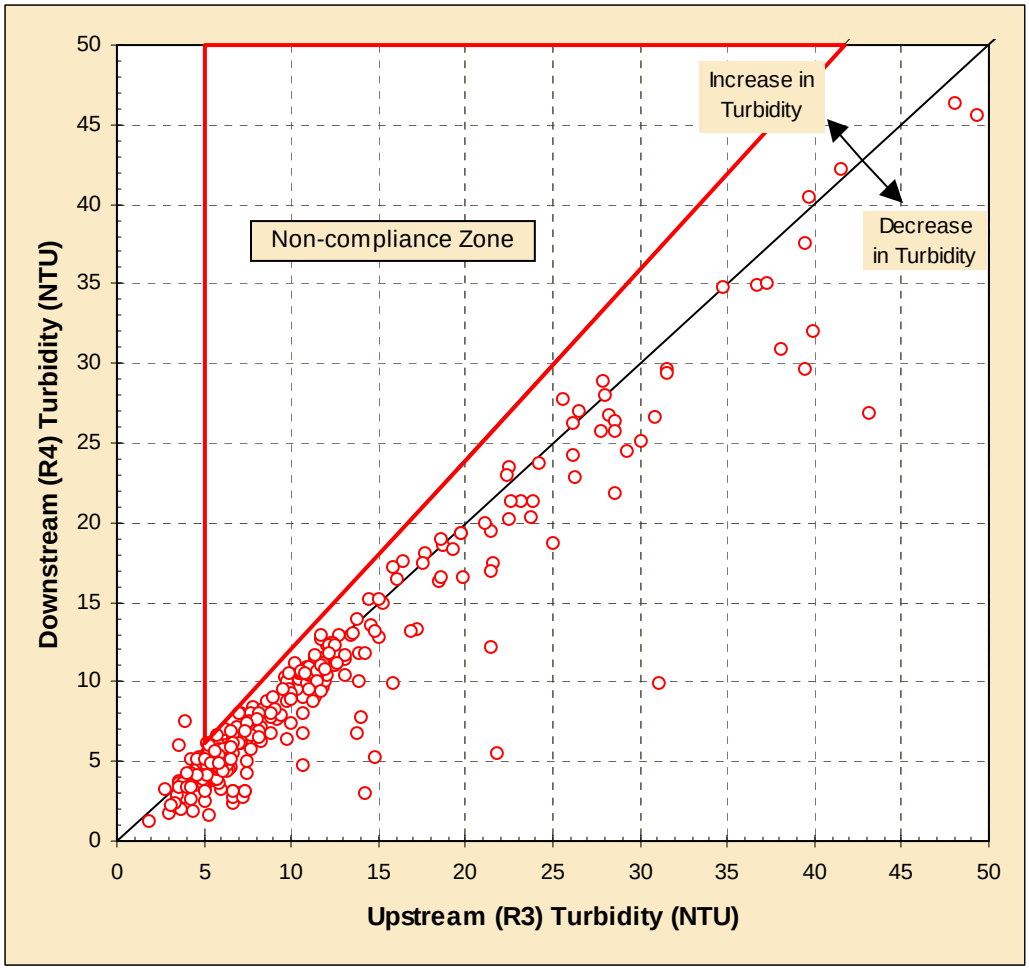

Figure 8
Turbidity Low Range Compliance Assessment (2005-2006)

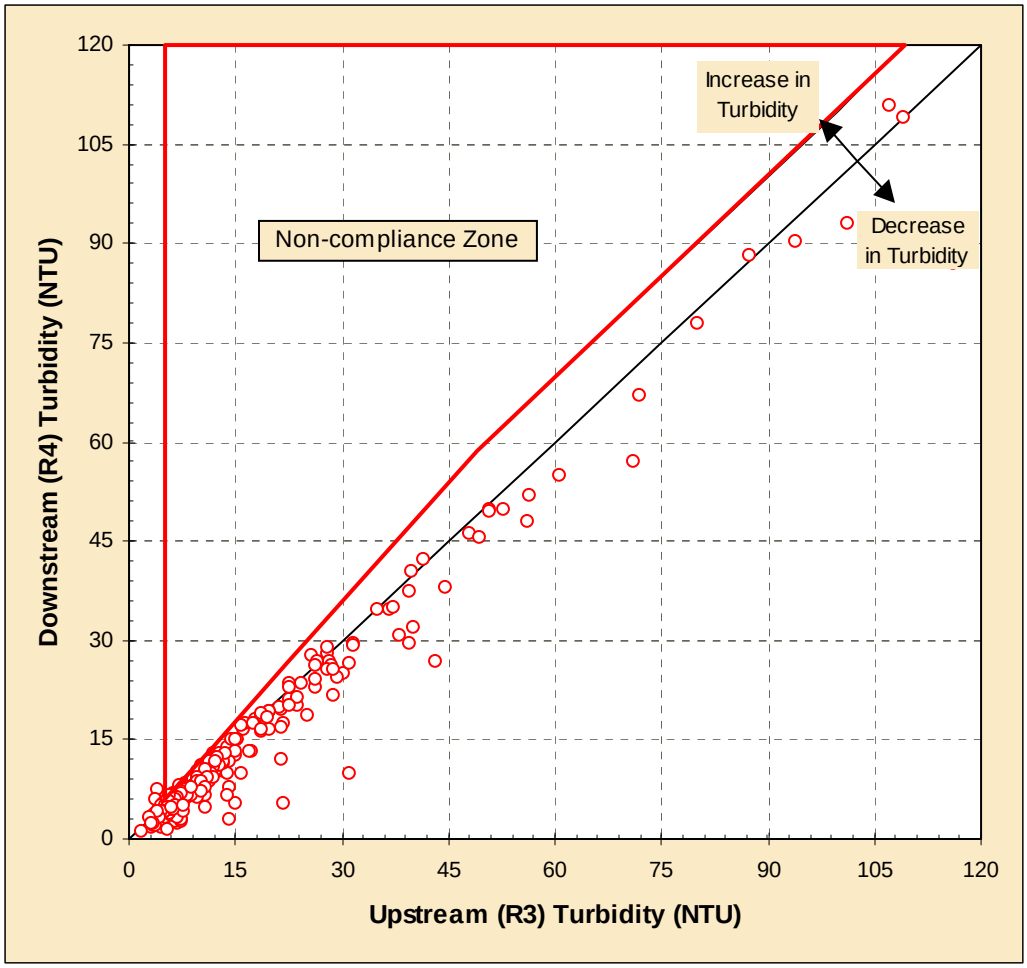

Figure 9
Turbidity Full Range Compliance Assessment (2005-2006)

5.0 CONCLUSIONS

To conduct an anti-degradation analysis, it is necessary to determine whether the proposed discharge will degrade receiving water baseline water quality. The proposed project will increase the discharge of the effluent to the receiving water from the current average dry weather flow of 4.2 mgd to 8.4 mgd (phase 1) and up to 12.6 mgd (phase 2) of tertiary treated wastewater over the course of the new permit.

Monitoring results for concentration of priority and non-priority pollutants in the effluent showed that fifty-four pollutants are discharged to the receiving water from the Lincoln WWTRF at detectable concentrations at times. CTR priority pollutants were detected at a concentration that were below reporting limits (i.e. Detected, Not Quantified or DNQ), which is not a compliance issue. However, based on the guidance provided by the SIP, these estimated concentrations or

DNQs were the indicators of a potential problem warranting continued monitoring. Based on the review of the expected concentration of these pollutants after the WWTRF expansion, the receiving water quality will either improve or remain the same upon implementation of the proposed project. The receiving water conditions, as measured by the dissolved oxygen concentration, pH, temperature, and turbidity will either improve or remain the same upon completion of the proposed project. Therefore, it has been determined that the proposed increase in effluent discharge to Auburn Ravine will not lower receiving water quality below the existing baseline and will not impact any beneficial uses of the receiving water.